



## ABSTRACT

The present invention relates to a heat exchanger comprising a plurality of parallel-oriented plates or layers securely fixed between two outer walls or frames to define between adjacent plates an area of sealed passages for two heat exchanging fluids, channel or duct means for conducting a hot medium and a cold medium respectively over the layers such that the flow of hot and cold medium takes place in an in-line and a counter-flow fashion, and an external return bend means providing a transfer of the respective medium from one layer to another. Each of the channel means are defined by a pair of layers disposed one next to the other, by straight or directional baffle means, and an internal return bend means located between the adjacent layers. The internal return bend means have a configuration allowing direct access to the channel means at at least one end without the necessity to dismantle the entire heat exchanger unit, and the outer walls or frames of the heat exchanger form a permanently fixed rigid structure to provide a liquid-tight enclosure. The external return bend means have a predetermined configuration adapted to provide a greater flow turbulence of the fluid passing through each of the channels.